

In the claims

1 - 58. (Canceled)

59. (Previously Presented) An expandable spacer, comprising:

an axial tube having a surface provided along an initial contour, a proximal end, a distal end and a length,

wherein, said surface defines a plurality of axially displaced slits, said plurality of slits defining at least two axially displaced extensions, such that when said tube is axially compressed, said extensions extend out of said initial contour and define a geometry of an expanded spacer;

wherein when the tube is axially compressed, the at least two extensions have respective peaks farthest radially from the tube, the peaks of the extensions being separated from each other along the tube axis by portions of said surface situated radially inwards of said peaks in the axially compressed configuration;

wherein said spacer is adapted for support of two vertebral plates on either side of the spacer, and

wherein at least one of the extensions is designed to carry greater stress and has an increased strength over another extension, wherein a trans-axial cross-section diameter of said expanded geometry varies along an axis of said expanded geometry; and

wherein said cross-section is rectangular and wherein said cross-section diameter increases along said expanded geometry axis.

60 - 68. (Canceled)

69. (Previously Presented) An expandable spacer, comprising:

an axial tube having a surface provided along an initial contour, a proximal end, a distal end and a length,

wherein, said surface defines a plurality of axially displaced slits, said plurality of slits defining at least two axially displaced extensions, such that when said tube is axially compressed, said extensions extend out of said initial contour and define a geometry of an expanded spacer;

wherein when the tube is axially compressed, the at least two extensions have respective peaks farthest radially from the tube, the peaks of the extensions being separated from each other along the tube axis by portions of said surface situated radially inwards of said peaks in the axially compressed configuration;

wherein said spacer is adapted for support of two vertebral plates on either side of the spacer, and

wherein at least one of the extensions is designed to carry greater stress and has an increased strength over another extension, said spacer further comprising a ratchet mechanism to maintain said spacer in an expanded configuration.

70 - 71. (Canceled)

72. (Previously Presented) An expandable spacer, comprising:

an axial tube having a surface provided along an initial contour, a proximal end, a distal end and a length,

wherein, said surface defines a plurality of axially displaced slits, said plurality of slits defining at least two axially displaced extensions, such that when said tube is axially compressed, said extensions extend out of said initial contour and define a geometry of an expanded spacer;

wherein when the tube is axially compressed, the at least two extensions have respective peaks farthest radially from the tube, the peaks of the extensions being separated from each other along the tube axis by portions of said surface situated radially inwards of said peaks in the axially compressed configuration;

wherein said spacer is adapted for support of two vertebral plates on either side of the spacer, and

wherein at least one of the extensions is designed to carry greater stress and has an increased strength over another extension, said spacer further comprising at least one portion of said spacer that prevents axial contraction of said spacer, wherein said at least one portion comprises a strip that folds and forms a thickness between two opposing sides of said spacer, preventing the opposing sides from meeting.

73-92. (Canceled)

93. (Previously Presented) An expandable spacer, comprising:

an axial tube having a surface provided along an initial contour, a proximal end, a distal end and a length,

wherein, said surface defines a plurality of axially displaced slits, said plurality of slits defining at least two axially displaced extensions, such that when said tube is axially compressed, said extensions extend out of said initial contour and define a geometry of an expanded spacer;

wherein when the tube is axially compressed, the at least two extensions have respective peaks farthest radially from the tube, the peaks of the extensions being separated from each other along the tube axis by portions of said surface situated radially inwards of said peaks in the axially compressed configuration;

wherein said spacer is adapted for support of two vertebral plates on either side of the spacer, and

wherein at least one of the extensions is designed to carry greater stress and has an increased strength over another extension, wherein said spacer is formed of a combination of distinct zones of different materials.

94 – 95. (Canceled)

96. (Currently Amended) An expandable spacer, comprising:

an axial tube having a surface provided along an initial contour, a proximal end, a distal end and a length,

wherein, said surface defines a plurality of axially displaced slits, said plurality of slits defining at least two axially displaced extensions, such that when said tube is axially compressed, said extensions extend out of said initial contour and define a geometry of an expanded spacer;

wherein when the tube is axially compressed, the at least two extensions have respective peaks farthest radially from the tube, the peaks of the extensions being separated from each other along the tube axis by portions of said surface situated radially inwards of said peaks in the axially compressed configuration;

wherein said spacer is adapted for support of two vertebral plates on either side of the spacer, and

wherein at least one of the extensions is designed to carry greater stress and has an increased strength over another extension, wherein said spacer is formed of a super-elastic material, which is super-elastically deformed by ~~the~~an extension deformation.

97. (Canceled)

98. (Previously Presented) An expandable spacer, comprising:

an axial tube having a surface provided along an initial contour, a proximal end, a distal end and a length,

wherein, said surface defines a plurality of axially displaced slits, said plurality of slits defining at least two axially displaced extensions, such that when said tube is axially compressed, said extensions extend out of said initial contour and define a geometry of an expanded spacer;

wherein when the tube is axially compressed, the at least two extensions have respective peaks farthest radially from the tube, the peaks of the extensions being separated from each other along the tube axis by portions of said surface situated radially inwards of said peaks in the axially compressed configuration;

wherein said spacer is adapted for support of two vertebral plates on either side of the spacer, and

wherein at least one of the extensions is designed to carry greater stress and has an increased strength over another extension, wherein said spacer is adapted to axially deform only under axial forces of over 20 Kg force.

99. (Previously Presented) An expandable spacer, comprising:

an axial tube having a surface provided along an initial contour, a proximal end, a distal end and a length,

wherein, said surface defines a plurality of axially displaced slits, said plurality of slits defining at least two axially displaced extensions, such that when said tube is axially compressed, said extensions extend out of said initial contour and define a geometry of an expanded spacer;

wherein when the tube is axially compressed, the at least two extensions have respective peaks farthest radially from the tube, the peaks of the extensions being separated from each other

along the tube axis by portions of said surface situated radially inwards of said peaks in the axially compressed configuration;

wherein said spacer is adapted for support of two vertebral plates on either side of the spacer, and

wherein at least one of the extensions is designed to carry greater stress and has an increased strength over another extension, wherein said spacer is adapted to axially deform only under axial forces of over 30 Kg force.

100. (Previously Presented) An expandable spacer, comprising:

an axial tube having a surface provided along an initial contour, a proximal end, a distal end and a length,

wherein, said surface defines a plurality of axially displaced slits, said plurality of slits defining at least two axially displaced extensions, such that when said tube is axially compressed, said extensions extend out of said initial contour and define a geometry of an expanded spacer;

wherein when the tube is axially compressed, the at least two extensions have respective peaks farthest radially from the tube, the peaks of the extensions being separated from each other along the tube axis by portions of said surface situated radially inwards of said peaks in the axially compressed configuration;

wherein said spacer is adapted for support of two vertebral plates on either side of the spacer, and

wherein at least one of the extensions is designed to carry greater stress and has an increased strength over another extension, wherein said spacer is adapted to axially deform only under axial forces of over 50 Kg force.

101. (Previously Presented) An expandable spacer, comprising:

an axial tube having a surface provided along an initial contour, a proximal end, a distal end and a length,

wherein, said surface defines a plurality of axially displaced slits, said plurality of slits defining at least two axially displaced extensions, such that when said tube is axially compressed, said extensions extend out of said initial contour and define a geometry of an expanded spacer;

wherein when the tube is axially compressed, the at least two extensions have respective peaks farthest radially from the tube, the peaks of the extensions being separated from each other along the tube axis by portions of said surface situated radially inwards of said peaks in the axially compressed configuration;

wherein said spacer is adapted for support of two vertebral plates on either side of the spacer, and

wherein at least one of the extensions is designed to carry greater stress and has an increased strength over another extension, wherein said spacer is adapted to axially deform only under axial forces of over 70 Kg force.

102. (Previously Presented) An expandable spacer, comprising:

an axial tube having a surface provided along an initial contour, a proximal end, a distal end and a length,

wherein, said surface defines a plurality of axially displaced slits, said plurality of slits defining at least two axially displaced extensions, such that when said tube is axially compressed, said extensions extend out of said initial contour and define a geometry of an expanded spacer;

wherein when the tube is axially compressed, the at least two extensions have respective peaks farthest radially from the tube, the peaks of the extensions being separated from each other along the tube axis by portions of said surface situated radially inwards of said peaks in the axially compressed configuration;

wherein said spacer is adapted for support of two vertebral plates on either side of the spacer, and

wherein at least one of the extensions is designed to carry greater stress and has an increased strength over another extension, wherein said spacer is adapted to axially deform only under axial forces of over 90 Kg force.

103-219. (Cancelled)

220. (Previously Presented) An expandable spacer, comprising:

an axial tube having a surface provided along an initial contour, a proximal end, a distal end and a length,

wherein, said surface defines a plurality of axially displaced slits, said plurality of slits defining at least two extensions, such that when said tube is axially compressed, said extensions extend out of said initial contour and define a geometry of an expanded spacer; wherein when the tube is axially compressed, the at least two extensions have respective peaks farthest radially from the tube, the peaks of the extensions being separated from each other along the tube axis by portions of said surface situated radially inwards of said peaks in the axially compressed configuration;

wherein said spacer is adapted for support of two vertebral plates on either side of the spacer, and

wherein said spacer comprises at least one portion that prevents axial contraction of said spacer, the at least one portion including a pair of tabs that abut when the spacer is axially contracted or a strip that folds and forms a thickness between two opposing sides of said spacer, preventing the opposing sides from meeting.

221.- 232. (Canceled)

233. (New) A spacer according to claim 220, wherein said at least two extensions comprises at least three extensions, which three extensions extend in at least three different directions from said tube.

234. (New) A spacer according to claim 220, wherein said at least two extensions comprises at least four extensions, which four extensions extend in at least four different directions from said tube.

235. (New) A spacer according to claim 220, wherein said slits are straight.

236. (New) A spacer according to claim 220, wherein said slits are curved.

237. (New) A spacer according to claim 220, wherein said slits are narrow.

238. (New) A spacer according to claim 220, wherein said slits have a non-trivial width for at least part of their length.

239. (New) A spacer according to claim 220, wherein said slits are substantially parallel to said tube axis.

240. (New) A spacer according to claim 220, wherein said slits are not parallel to said tube axis.

241. (New) A spacer according to claim 220, wherein said slits are arranged in pairs of same length.

242. (New) A spacer according to claim 220, wherein slits associated with one extension axially overlap slits associated with a second, axially displaced, extension.

243. (New) A spacer according to claim 220, wherein said proximal end of said tube defines a proximal end-cap, which end-cap extends outside of a volume defined by the geometry of said extended extensions.

244. (New) A spacer according to claim 220, wherein said distal end of said tube defines a distal end-cap, which end-cap extends outside of a volume defined by the geometry of said extended extensions.

245. (New) A spacer according to claim 243, wherein at least one of said extensions is flush with said proximal end of said tube.

246. (New) A spacer according to claim 243, wherein at least one of said extensions is flush with said distal end of said tube.

247. (New) A spacer according to claim 220, comprising at least one spur axially extending from said spacer, to engage tissue adjacent said spacer.

248. (New) A spacer according to claim 247, wherein said at least one spur comprises at least two spurs axially extending from said spacer.

249. (New) A spacer according to claim 220, comprising an inner bolt.

250. (New) A spacer according to claim 249, wherein said inner bolt has a smooth exterior.

251. (New) A spacer according to claim 249, wherein said inner bolt has a threaded exterior.

252. (New) A spacer according to claim 249, wherein said bolt has a head, which head locks against at least one end of said tube, to prevent axial expansion of said tube, wherein said head comprises at least one protrusion extending from said head toward said tube, to engage said tube.

253. (New) A spacer according to claim 220, wherein at least one of the extensions is designed to carry greater stress and has an increased strength over another extension, wherein said spacer comprises a plurality of segments, each segment defining one or more extensions that extend from said spacer; and

wherein said segments comprises at least two segment types, each segment type defining extensions that extend in different directions relative to said tube, wherein said two segment types comprise a horizontal segment defining two extensions that extend along a line and a segment defining four extensions that extend at about $\pm 45^\circ$ to said two extensions.

254. (New) A spacer according to claim 220, wherein a trans-axial cross-section diameter of said expanded geometry varies along an axis of said expanded geometry; and wherein said cross-section is rectangular and wherein said cross-section diameter increases along said expanded geometry axis.

255. (New) A spacer according to claim 220, wherein said spacer further comprising a ratchet mechanism to maintain said spacer in an expanded configuration.

256. (New) A spacer according to claim 220, wherein said spacer further comprising at least one protrusion on at least one of said extensions, to prevent collapsing of said extension.

257. (New) A spacer according to claim 220, wherein the at least one portion including at least one pair of tabs that prevent axial contraction.

258. (New) A spacer according to claim 220, wherein said spacer is adapted to axially deform only under axial forces of over 20 Kg force.

259. (New) A spacer according to claim 220, wherein said spacer is adapted to axially deform only under axial forces of over 30 Kg force.

260. (New) A spacer according to claim 220, wherein said spacer is adapted to axially deform only under axial forces of over 50 Kg force.

261. (New) A spacer according to claim 220, wherein said spacer is adapted to axially deform only under axial forces of over 70 Kg force.

262. (New) A spacer according to claim 220, wherein said spacer is adapted to axially deform only under axial forces of over 90 Kg force.

263. (New) A spacer according to claim 220, wherein said spacer is adapted to remain expanded in a vertebra of an active human, when placed with the tube axis perpendicular to a spine of said human.

264. (New) A spacer according to claim 220, wherein said spacer is coated with a bio-active coating.

265. (New) A spacer according to claim 264, wherein said bio-active coating retards bone ingrowth.

266. (New) A spacer according to claim 264, wherein said bio-active coating promotes bone ingrowth.

267. (New) A spacer according to claim 220, wherein said spacer comprises at least one protrusion on at least one of said extensions, to prevent collapsing of said extension.

268. (New) A spacer according to claim 220, wherein said spacer is formed of a super-elastic material, which is super-elastically deformed by an extension deformation.

269. (New) A spacer according to claim 220, wherein said spacer is formed of a combination of distinct zones of different materials.

270. (New) A spacer according to claim 220, wherein a plurality of annealed locations are provided on said spacer to assist in expansion of said spacer.

271. (New) A spacer according to claim 220, wherein at least one of said extensions comprises at least four legs that are coupled by an extension top.

272. (New) A spacer according to claim 220, said spacer further comprising at least one protrusion on at least one of said extensions, to interlock said at least two extensions.